

Work Order ID 52969

October 20, 2009 7:32:39 AM

Page 1

Item ID: D6104-003

Revision ID: B

Item Name: Round Billet, 17-4

Start Date: 10/20/09 Start Qty: 20.00

Required Date: 11/04/09 Req'd Qty: 20.00

Reference:

Approvals: Process Plan: *CL*

Date: 09/10/20

QC:

Date:

Tooling:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D6104

Rev B

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O: 1060-2 (a)Description: S.S round billet (b) Ø3.25" x 3.80" long (c) Tolerance on all dimensions are +0.030"/-0.000" (d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630) (e)One blank makes 2 parts (f) Material certification required

CL 09/10/20 (20)

110

0.00



Receive & Inspect for Damage & Mat'l Certs

Packaging

Memo

0.00

Packaging

Ensure material certification is attached

CL 09/14/29 (20)

120

0.00



QC6- Inspect dimensions to drawing

QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg D6104

CL 09/10/29

20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Reference:

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QC:

Date:
Date:

Tooling:
SPC (Y/N):

Date:
Date:

Run Start
Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

Identify as per dwg & Stock Location: MAT

0.00



Packaging

Memo

0.00

Packaging

140

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control



Accept



Setup Start



Stop



Cust Item ID:

Customer:



09/10/29

20

09/10/30 MF

MF
09-10-30

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October 20, 2009 7:32:39 AM

Work Order ID: 52969

Parent Item: D6104-003RevB

Parent Item Name: Round Billet, 17-4

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location
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D6104-003PRevB		Purchased	No	
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17-4 SS Roundbar 3.25"OD



Start Date: 10/20/09

Required Date: 11/04/09

Start Qty: 20.00

Required Qty: 20.00

Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
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	110	Each	0.0000	20.0000			
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10/20/09 (20)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

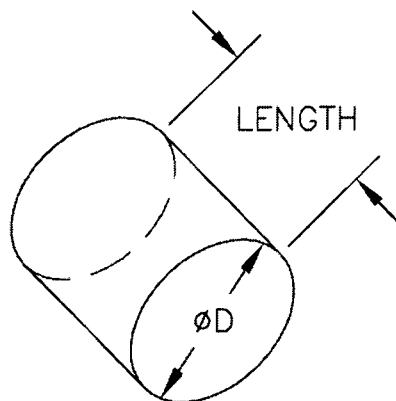
NOTE: Date & initial all entries



DESIGN 74	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.25

SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 52969
02/10/20

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP

Page 1 of 1

Pack Slip No:5911405

Ship From: Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 28-OCT-09	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier MANITOULIN	BOL No 106456-2	Delivery No 5911405		

Shipment Details	Final Destination Branch - MON
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Order No 362842	Line No 1	Item No 42470.MO	Description 3.2500.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 3.8 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AISI 630,AMS 5643,ASME SA564,ASTM A564,UNS S17400			
Purchase Order No 10602		Part Number	Ordered Qty 20 PCS	Invoice Qty 20 PCS	Backorder Qty	
Details						
Mill	Heat Number 248313	Mech Id	PCS 20	Width (IN)	Length (IN)	Shipped Qty (LBS) 178.67

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

This material has been received and inspected by:	Date:
---------------------------------------------------	-------

**VALBRUNA****SLATER STAINLESS, INC.**

2400 Taylor Street West, P.O. Box 630

Fort Wayne, Indiana USA 46801

Phone: 260-434-2882 Fax: 260-434-2905

Product Certification ReportReport Number: **4469590**

Certified on Sep 04, 2009 Page 1 of 1

Order I.D. 0900985 001		Order Date 6/16/09		Commodity Code 42470	
Dim 1 3.2500	Dim 2 .0000	Dim 3 .0000	Heat I.D. 248313	Customer I.D. 001123	Customer Purchase Order 01-21644
Product Shape Rounds			Product Surface HR & Rough Turned		Customer Grade 17-4
Length (Inches) 132.000 Min. 156.000 Max.			Bill of Lading # 410597	Weight	

Ship To
CASTLE METALS
3400 NORTH WOLF ROAD
FRANKLIN PARK, IL 60131
Sold To
VALBRUNA STAINLESS, INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN 46802
Lifts: 0072

AISI 630

UNS S17400

AMS 2303E

CONDITION A

ASTMA 564-04

AMS 5643R (except finish)

3174-10 Rev 4 DTD 08/27/03

ASMESA 564 01 ED 2002 ADD

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	Cb+Ta
.038	.57	.021	.022	.34	15.65	4.61	.20	3.33	.04	.24	.001	.241

HBW

350

TENSILE PROPERTIES**CAPABILITY**

Cap HB	TS (PSI)	.2%YS (PSI)	%EL(4d)	%RA	AGE(F)
434	208000	189300	19.1	57.6	900

MAGNETIC PARTICLE TEST

FREQ SEV

AVG .19 .20

PRODUCTION HEAT TREATMENT

SOL-ANN(F)	SOL-ANN(HR)	QUENCH
1900	6.00	Air

MACRO ASTM E340/E381

MACRO

OK

PERCENT FERRITE

% FERRITE

AVG .5

Reduction ratio 5 To 1 Min.

Electric Furnace melted; AOD refined.

Ultrasonic test OK.

Chemical testing performed to one or several of the following ASTM methods: E415, E572, E1019, E1085, E10

No mercury or low melting alloy contamination. No weld repairs.

Material melted in Italy, manufactured in the United States.

Material conforms to listed specifications and is DFARS compliant.

Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1.

Castle Metals FPHEAT NUMBER **248313**MECHANICAL ID **0072**ITEM CODE **42470**

LOT NUMBER

PO NUMBER **211044**RECEIPT DATE **9-14-09**SUPPLIER **Valbruna**

SPECIFICATION

LCS **N**APPROVED **[Signature]**

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard information. I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

Dennis Hackett

DART
aerospace

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO10602

Purchase Order Date 10/20/09
PO Print Date 10/20/09

Page Number 1 of 1

FAKED

VC-MET001

Order From :

METAUX CASTLE
A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
CA

Contact Name
Vendor Phone 514 694 9575
Vendor Fax 514 695 3281
Vendor Account Nbr

Buyer Chantal Lavoie
Requisition Nbr 10127-2607
Tax Resale Nbr Net 30
Terms CAD
Currency
FOB

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	E
1	D6104-003P B	17-4 SS Roundbar 3.25"OD	11/04/09 Yes	20.00 Each	Yours ppd	\$39.0000	

Special Inst:

AS PER DWG D6104 REV. B
B52969
ROUND BILLET S.S.
SIZE: 3.25" X 3.80" LONG
TOLERANCE ON ALL DIMENSIONS ARE
+0.030"/-0.000"
MATERIAL: 17-4PH STAINLESS STEEL
PER AMS 5643 OR AISI 630

PO Total:

**MATERIAL CERTIFICATION
REQ'D UPON DELIVERY**

No substitution or deviatio
consent.
Certificate of Conformity
Certification required wh

h
Date: 10/20/09